

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The final Office Action dated January 12, 2006, has been received and its contents carefully reviewed. Applicants appreciate the indication by the Examiner that claim 21 is allowed.

Claims 1-9, 11-20 and 22-42 are rejected. Claims 1-9 and 11-43 remain pending in this application.

In the Office Action, claims 1-13, 15, 16, 18-20, 22-24 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Related Art (ARA) in view of U.S. Publication No. 2005/0018108 (hereinafter '108'). Claims 14, 17, 25-28 and 30-42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of '108 and further in view of U.S. Patent No. 5,777,707 (hereinafter '707'), U.S. Patent No. 5,757,452 (hereinafter '452'), U.S. Patent No. 5,642,176 (hereinafter '176'), U.S. Patent No. 5,142,392 (hereinafter '392') and U.S. Patent No. 6,707,067 (hereinafter '067').

As an initial matter, Applicants note that while the Examiner alleges that claims 18-20, 22, 23, and 43 are unpatentable over Applicants' Related Art and '108, neither the current Office Action nor any of the previous Office Actions for this application provide an application of the cited references to these claims. Applicants expressly request that claims 18-20, 22, 23 and 43 be examined. In particular, claims 20 and 22 each recites the limitation "wherein the bent portion of the data lines of the first set and the bent portion of the data lines of the second set are symmetric with respect to an axis perpendicular to the gate line" which is not recited in any other rejected claim and which Applicants submit is not shown by Applicants' Related Art. Claim 22 additionally recites the limitation "wherein the bent portion of the data lines of the first set and the bent portion of the data lines of the second set are the same direction," which is not recited in any other claim and which Applicants submit is not shown by Applicants' Related Art. Claim 43 recites the limitation "wherein each W pixel is arranged to be symmetric with respect to the gate line to an adjacent W pixel" which is not recited by any other claim and which Applicants submit is not shown by Applicants' Related Art. Applicants further note Applicants expressly pointed out the lack of treatment of claims 18-20, 22 and 23 in Applicants' response dated April 11, 2006. Applicants submit that it is improper to make the current Office Action final without giving Applicants a chance to respond to an examination of at least claims 18-20, 22 and 23, and respectfully request that the finality of the current Office Action be withdrawn.

The rejection of claims 1-9, 11-13, 15, 16, 18-20, 22-24 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Related Art (hereinafter 'ARA') in view of U.S. Publication No. 2005/0018108 (hereinafter '108') is respectfully traversed and reconsideration is requested. Claim 10 has been previously cancelled without disclaimer or prejudice and Applicants submit that the rejection to claim 10 is moot.

Applicants submit that claims 1 and 11 are allowable over ARA '108 because the references do not teach each and every element of the claims.

Claim 1 recites an in-plane switching liquid crystal display device having a combination of features including "wherein the R, G, B, and W pixels are arranged in a zigzag pattern in a data line direction, and each of R, G, B, and W pixels is arranged to be symmetric with respect to the gate line to adjacent R, G, B, and W pixels" and "wherein each W pixel is not adjacent to another W pixel."

Applicants submit that Applicants related art does not teach at least "wherein each W pixel is not adjacent to another W pixel." The Examiner cites paragraph [0016] of '108 as teaching that it was conventional to use dedicated white pixels. To arrive at a configuration having non-adjacent white pixels, the Examiner proposes adding a single white pixel to the arrangement shown in FIG. 3 of the Applicants' specification stating, "figure 3 clearly shows R, G, and B sequence, and adding a white pixel would add another element to the sequence but the sequence would only be altered to accommodate the white pixel."

Applicants respectfully disagree with the Examiners conclusion regarding the teaching of '108. Paragraph [0016] of '108 states, "Conventionally, formation of one pixel with four dots, being red, green, blue, and white, has been carried out partially for transmissive type liquid crystal devices, but it has not been proposed for reflective type color liquid crystal devices." In '108, a "pixel" comprises a set of dots or sub pixels. Applicants submit that '108 does not teach adding a single white pixel to the two sets of red, green and blue sub pixels and does not teach adding white pixels to the two sets of red, green, and blue sub-pixels such that the white pixels are not adjacent.

Further, Applicants note that in rejecting claim 14, the Examiner states in the Office Action "ARA in view of 108 teaches the in-plane switching mode liquid crystal display device 13, but lacks the white pixel of the first set and the white pixel of the second set are not adjacent to each other." Applicants agree with the Examiner's characterization of ARA and '108 which

acknowledges that ARA and '108 do not teach the quoted combination of features of claim 1. Accordingly Applicants respectfully submit that the claim 1 and claims 2-7 depending therefrom are allowable over ARA and '108.

Claim 11 recites an in-plane switching liquid crystal display device having a combination of features including "wherein the first set of pixels and the second set of pixels are adjacent to each other and wherein the white pixel of the first set and the white pixel of the second set are not adjacent to each other." Applicants respectfully that ARA and '108 fail to teach the recited features of claim 11 for reasons identical to those given for claim 1. Accordingly, Applicants respectfully submit that the claim 11, and claims 12, 13, 15, 16, 18-20 and 22-24 depending therefrom are allowable over ARA and '108.

Applicants further submit that claims 1, 8, and 11 are allowable over ARA and '108 because no motivation has been provided to combine 'ARA' and '108 to produce the combination of elements recited in the claims.

Claim 1 recites an in-plane switching mode liquid crystal display device "wherein the R, G, B, and W pixels are arranged in a zigzag pattern in a data line direction, and each of R, G, B, and W pixels is arranged to be symmetric with respect to the gate line to adjacent R, G, B, and W pixels." In rejecting claim 1, the Examiner indicates, "it was well known or conventional to use dedicated white pixels...to produce white without the need for complex driving multiple subpixels." Applicants respectfully disagree that the teaching indicated by the Examiner would motivate one skilled in the art to add a white pixel to a color display with R, G, B pixels because the complex driving circuitry for driving the subpixels would necessarily be present and adding circuitry for driving the dedicate 'W' pixel would add rather than reduce driver complexity. Accordingly, Applicants respectfully submit that no motivation outside of the Applicants specification has been provided to combine the ARA and '108 to produce the combined features recited in claim 1. Furthermore, because adding a white pixel to a group of colored sub pixels would result in increased complexity, the teaching suggested by the examiner to avoid circuit complexity would actually teach away from the combination recited in claim 1.

Claim 8 recites an in-plane switching mode liquid crystal display device including "a plurality of pixels defined by a plurality of gate lines and a plurality of data lines, each pixel including R (Red), G (Green), B (Blue), and W (White) subpixels." In rejecting claim 8, the Examiner indicates that ARA and '108 teach this element for the same reasons given for claim 1.

Applicants' argument with respect to claim 1 is equally applicable to claim 8. Accordingly, Applicants respectfully submit that no motivation outside of the Applicants specification has been provided to combine the ARA and '108 to produce the combined features recited in claim 8 and that claim 8 is allowable over ARA and '108 for at least this reason.

In the 'Response to Arguments' section of the Office Action, the Examiner states, "Adding a white pixel to the primary is conventional and would merely alter the primary reference by adding a white pixel after the blue pixel... Even though applicant claims to use white pixel for simplifying the driving, does not mean it was well known."

As an initial matter, Applicants have made no statement or claim to use a white pixel for simplifying the driving. Instead, Applicants have traversed the Examiner's statement that "it was well [known] or conventional to produce white without the need for complex driving multipixels" by noting that the Examiner's proposed construction of using white pixels and would add circuit complexity so that driving simplification would not constitute a motivation to modify the teachings of ARA.

Applicants submit that in making the rejection, the Examiner states no motivation for modifying the teachings of ARA other than that the modification is well known in the art. The Examiner's remarks in the 'Response to Arguments' section of the Office Action, suggest that "Because it is well known" constitutes motivation to combine. The Examiner's remarks imply that given an allegation that a feature is well known, no motivation need be provided to modify a reference to include the feature. Applicants respectfully disagree with the Examiner's remarks. MPEP 2143 states, "A statement that modifications of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references." Applicants submit that Examiner has pointed to no motivation in the prior art to combine the teachings of ARA and '108 to make the combination recited in claim 8. Accordingly, Applicants respectfully submit that the Examiner has not made a prima facie case of obviousness with respect to claim 8.

Claim 11 recites an in-plane switching mode liquid crystal display device including "a plurality of pixels defined by a plurality of gate lines and a plurality of data lines, each pixel including R (Red), G (Green), B (Blue), and W (White) subpixels." In rejecting claim 11, the

Examiner indicates that ARA and '108 teach this element for the same reasons given for claim 1. Applicants' argument with respect to claim 1 is equally applicable to claim 11. Accordingly, Applicants respectfully submit that no motivation outside of the Applicants specification has been provided to combine the ARA and '108 to produce the combined features recited in claim 11.

Accordingly, Applicants respectfully submit that claims 1, 8 and 11 are allowable over Applicants' Related Art and '108, for at least the reasons given above, and that claims 2-7, 9, 12, 13, 15, 16, 18-20 and 22-24 are also allowable over the cited references based on their dependencies from claims 1, 8 and 11.

Claim 29 as recites an in-plane switching mode liquid crystal display device having a combination of features including "wherein the first set of pixels and the second set of pixels are adjacent to each other and the third set of pixels and the fourth set of pixels are adjacent to each other and wherein the white pixels are not adjacent to each other, and wherein the white pixels of each of the first to fourth sets of pixel are not in a line" Applicants submit that ARA does not teach at least this element. The Examiner in rejecting claim 29 makes no allegation that ARA or '108 teach at least "wherein the white pixels of each of the first to fourth sets of pixel are not in a line." Accordingly, Applicants submit that ARA and '108, analyzed singly or in combination do not teach the above quoted combination of elements of claim 29, and respectfully submit that claims 29 is allowable over ARA and '108.

Applicants further submit that ARA and '108 do not teach "wherein the white pixels are not adjacent to each other" for reasons identical to those given for claim 1 above. Applicants respectfully submit that claim 29 is allowable over ARA and '108 for at least this additional reason.

Further, in rejecting claim 29, the Examiner cites Applicants' Related Art and '108 as teaching "a second set of pixels of different colors wherein one of the pixels is a white (W) pixel [top R and W, but must use every other R as R is shared with B]." The Examiner in his Office Action indicates, "there is a G pixel in between but they are still adjacent". It is unclear which pixels the Examiner refers to, but Applicants respectfully disagree that sets of pixels separated by a G pixel are still adjacent. Applicants submit that the identified set of pixels is not as recited in claim 29 and that Applicants' Related Art and '108, taken singly or in combination, fail to teach

or suggest the elements of claim 29. Accordingly, Applicants respectfully submit that claim 29 is allowable over the cited references and request that the rejection of claim 29 be withdrawn.

The rejection of claims 14, 17, 25-28 and 30-42 under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of '108 and further in view of U.S. Patent No. 5,777,707 (hereinafter '707'), U.S. Patent No. 5,757,452 (hereinafter '452'), U.S. Patent No. 5,642,176 (hereinafter '176'), U.S. Patent No. 5,142,392 (hereinafter '392') and U.S. Patent No. 6,707,067 (hereinafter '067') is respectfully traversed and reconsideration is requested. Applicants submit that the claims are allowable over the cited references, because no motivation exists to combine the teachings of the references to make the combination recited in the claims.

With respect to claims 14, 17 and 25-28, these claims depend from claim 11 and include by reference all of the limitations of claim 11. Claim 11 recites an in-plane switching mode liquid crystal display device having a combination of features including "wherein the first set of pixels and the second set of pixels are adjacent to each other and wherein the white pixel of the first set and the white pixel of the second set are not adjacent to each other." The Examiner in rejecting claims 14 and 17 states and Applicants agree that "[Applicants' Related Art] in view of '108 ...lacks the white pixel of the first set and the white pixel of the second set not adjacent to each other." To cure this deficiency, the Examiner cites patents '707, '452, '176, '392, and '067 as evidence that arrangements with non adjacent white pixels are well known in the art, and as motivation for modifying the teachings of Applicants' Related Art and '108 states "it would have been obvious to one of ordinary skill at the time of the invention to combine ARA in view of 108 with common knowledge in order to improve the color gamut of the cell." Assuming for the purpose of argument that the cited references do teach the arrangement in claim 11, Applicants disagree with the Examiner's contention that it is well known to improve the color gamut by having non adjacent white pixels and repeat the request made in the Applicants' April 11, 2006 response that the Examiner provide evidentiary support for this conclusion. Accordingly, Applicants submit that the Examiner has failed to establish a prima facie case that 14, 17 and 25-28 depending from claim 11 are unpatentable over the cited references, and respectfully request that the rejection be withdrawn.

In the 'Response to Arguments' section of the Office Action, the Examiner states "Regarding applicant's argument in support of claims 14, 17 and 25-28, applicant attacks the examiner's motivation, not that it was well known ... Furthermore the proper response to a well known or official notice rejection is to explain why it was not conventional or not convention in

the context of the claimed limitations. Attacking the motivation is not a sufficient response.” Applicants respectfully disagree with the Examiner’s statement concerning the sufficiency of the Applicants’ response. As a first matter, Applicants submit that Applicants’ response properly traverses the Examiner’s contention that using non adjacent white pixels improves color gamut. Further, Applicants submit that attacking the motivation to combine is an appropriate response to a rejection based on obviousness. Applicants submit that an allegation or evidence that a feature is well known does not eliminate the requirement to provide a motivation to modify the teachings of the references from the prior art to establish a prima facie case of obviousness.

MPEP 2143 states, “A statement that modifications of the prior art to meet the claimed invention would have been ‘well within the ordinary skill of the art at the time the claimed invention was made’ because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references.” Applicants submit that Examiner has pointed to no motivation in the prior art to combine the teachings of ARA and ‘108 with the teachings of Patents ‘707, ‘452, ‘176, ‘392 and ‘067 to make the combination recited in claim 11. Accordingly, Applicants respectfully submit that the Examiner has not made a prima facie case of obviousness over the cited references including ARA and Patents ‘108, ‘707, ‘452, ‘176, ‘392 and ‘067 with respect to claim 11 and claims 14, 17 and 25-28 depending there from.

As discussed above Applicants’ Related Art and ‘108 do not teach or suggest every element of claim 29. Applicants further submit that no motivation has been provided to combine the teachings Patents ‘108, ‘707, ‘452, ‘176, ‘392 and ‘067 with Applicants’ Related Art and ‘108 to make the combination recited in claim 29 for the reasons given above for claims 14, 17 and 25-28. Accordingly, Applicants respectfully submit that claims 30-42 are allowable over the cited references including ARA and Patents ‘108, ‘707, ‘452, ‘176, ‘392 and ‘067 at least because of their dependencies from claim 29.

Applicants believe the application is in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps

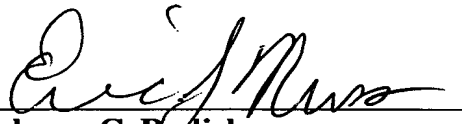
necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. § 1.136, and any additional fees required under 37 C.F.R. § 1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. *A duplicate copy of this sheet is enclosed.*

Respectfully submitted,

Dated: September 22, 2006

By


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